DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 2, 2008 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4-6, 9-13, 15, 16, 18, 19, 21-23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US Patent 6, 975,638 B1) in view of Lodha (US Patent 7,330,430 B2) and Conner et al (US Patent 7,039,061 B2).

Regarding to claims 1, 11, 16, and 23, Chen discloses an apparatus (fig. 7) comprising a classification unit C1-2 to examine packets received from a network (col. 7 lines 22-26), determine a path (egress port/destination port) to be taken by each packet through a switch fabric 70 (col. 7 lines 26-29), and classify each packet into one of a plurality of flow bundles based on the packet's destination and path through the switch fabric (col. 7 lines 29-45), and label each packet with a flow identifier to identify the

associated flow bundle (col. 7 lines 41-43); a mapping unit (CAM) coupled to the classification unit to place each packet into one of a plurality of queues 132 based on the flow bundle to which the packet has been classified (col. 7 lines 24-32); one or more traffic shapers 124-126 coupled to the mapping unit to regulate the rate at which traffic moves in of the queues (col. 7 lines 52-67 and col. 8 lines 1-25); and a scheduler 136 coupled to the traffic shapers to regulate the order in which packets in the queues will be transmitted from the queues to a next destination through the switch fabric (col. 8 lines 45-52).

Chen fails teach for regulating the rates at which traffic moves out of the queues with a traffic shaping algorithm.

However, Lodha discloses a packet-based traffic shaping system comprising a plurality of traffic shapers 106 for regulating the rates at which packets are output from a plurality of queues 104 (fig. 1 col. 4 lines 31-35).

Thus, it would have been obvious to a person of ordinary skill in the art to employ such shapers as taught by Lodha into Chen's system to prevent the scheduler from dequeuing packets at a rate that would exceed the limits of the traffic flow.

Chen and Lodha together fail to teach for all packets in a queue belong to the same flow bundle.

However, Conner discloses a method and apparatus for retaining packet order in multiprocessor systems via placing all packets sharing a common flow in one queue (fig. 4 col. 7 lines 7-11).

Thus, it would have been obvious to a person of ordinary skill in the art to provide such technique for queuing of packets as taught by Conner into Chen and Lodha's system to eliminate the possibility of out of order packets, which may results in lost packets and a reduction in network throughput.

Regarding to claims 4, 15, 18, and 26, Chen discloses labeling each packet with information identifying an associated flow and flow bundle (col. 7 lines 41-43).

Regarding to claims 5 and 21, Chen discloses classifying each packet into one of a plurality of flow bundles based on the packet's destination, path through the switch fabric, and priority (col. 7 lines 29-37).

Regarding to claim 6, Chen discloses scheduling the packets in the queues for transmission using a Round Robin scheduling algorithm (col. 7 lines 46-49).

Regarding to claims 9 and 19, Chen discloses determining which traffic class each received network packet belongs based on protocols associated with the packet (col. 2 lines 3-8).

Regarding to claims 10, 13, and 22, Chen discloses forwarding the packets to a switch 80 coupled to the switch fabric for transmission to the next destination (fig. 3 col. 5 lines 49-51).

Regarding to claim 12, Chen discloses an access unit L1-2 coupled to the classification unit to receive packets from and transmit packets to the network (col. 7 lines 13-21).

4. Claims 3, 14, 20, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Chen-Lodha-Conner in view of Hooman et al (US Patent 7, 155,716 B2).

Regarding to claims 3, 14, 20, and 25, the combination of Chen-Lodha-Conner disclose all the limitations with respect to claims 1, 11, 16, and 23, except for the classification unit comprises a load balancing element to determine a path to be taken by each packet through a switch fabric based on load balancing. However, Hooman discloses a method and system for scheduling transmission of packets comprising a classifier 314 that serve to provide load balancing (fig. 3 col. 3 lines 47-49). Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to employ such classifier as taught by Hooman into Chen-Lodha-Conner's system to avoid overflow in the queues.

5. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Chen-Lodha-Conner in view of Duffield et al (US Patent 6,452,933 B1).

Regarding to claims 7 and 8, the combination of Chen-Lodha-Conner disclose all the limitations with respect to claim 1, except for scheduling the packets in the queues for transmission comprises scheduling the packets in the queues for transmission using a Longest Delay First algorithm (claim 7) or a Stepwise QoS Scheduler SQS (claim 8). However, Duffield discloses a method and apparatus for routing packets in a communication network comprising a scheduler 200 implementing the Longest Delay First algorithm and the Least Time to Overflow algorithm (fig. 2 col. 5 lines 4-25). Thus,

it would have been obvious to a person of ordinary skill in the art to employ such scheduler as taught by Duffield in Chen-Lodha-Conner's system for delivery of packets having various properties and criteria requirements.

Conclusion

6. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Duong whose telephone number is (571)272-3122. The examiner can normally be reached on M-F (8:00 AM-5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. T. D./
Examiner, Art Unit 2619

/Wing F Chan/
Supervisory Patent Examiner, Art Unit 2619
6/9/08